versity of Padua—the university where Harvey was taught the anatomy of the heart well-nigh on three centuries ago—and note the manner in which he applies his morphological doctrines to the treatment of disease. He wishes "to establish whether the heart is adequately proportionate to the body or not." He applies the following law, which is given here in italics, as in the original (p. 226):—

"*If one measures the thickness of the right fist (in left-hand persons of the left), placing the tape-measure on the extremities of the first phalanges of the index and little fingers, which articulate with the respective bones of the metacarpus, and fix the ends of the measure surrounding the joints in such a way that it includes their thickness, one will have the measure of the base of the heart.*"

Prof. De-Giovanni's law has several disadvantages; in the first place, it cannot be applied until the patient is dead, and, in the second, it does not hold true even then. Those who are unaware of Prof. De-Giovanni's researches find, in the manner in which the heart responds to its work, a safe indication of whether it is "adequately proportionate to the body or not."

The scientific value of this book may be judged from the passages which have been cited. It is much to be feared that its doctrines will meet, from English-speaking medical men, the same reception as has been accorded to them by Prof. De-Giovanni's Italian "academicians." A. K.

ELEMENTARY BOOKS ON BOTANY.

(1) *Pronunciation of Plant Names.* (Reprinted from *The Gardeners' Chronicle.*) Pp. v+94. (London: *The Gardeners' Chronicle,* Ltd., 1909.) Price 1*s.* net.

(2) *Botany.* By Prof. J. Reynolds Green, F.R.S. Pp. 128. (Dent's Scientific Primers.) (London: J. M. Dent and Co., n.d.) Price 1*s.* net.

(3) *Essentials of Botany.* By Joseph Y. Bergen. Pp. ix+380. (Boston, New York, Chicago, and London: Ginn and Co., n.d.) Price 5*s.*

(1) THIS is a distinctly useful little book. Although primarily intended to encourage uniformity of pronunciation on the part of those engaged in horticulture, it will also, in these days of neglect of the classics, repay perusal by the professional botanist. Even the latter is occasionally guilty of a false quantity. To take a single example, one frequently hears Conium pronounced Co'-ni-um, though Co-ni'-um (*cf.* the Greek κώνειον) is, of course, more correct. But in some cases the compiler has wisely retained Anglicised pronunciations, even though less strictly correct, in deference to established usage. One is tempted to express the wish that more uniformity could be secured in the pronunciation, not only of plant names, but also of botanical technical terms.

(2) Prof. Green's book will probably prove helpful to school teachers and students who have some previous knowledge of the subject. For such it may tend to broaden their conceptions and offer a new point of view. One of the best features of the book is the rather striking and somewhat novel way in which the general adaptation of the plant-body to its environment is constantly emphasised. For instance, the author points out that the effect of the branching of the plant-body (both shoot and root) is to bring the plant

"into relationship with as large a portion of the environment as possible. Here is clearly an indication or suggestion of an interchange of material between the two."

But the book is rather seriously marred by a want of accuracy, some carelessness of expression, and a few antiquated views to be found in certain of its portions, particularly those dealing with anatomy, *e.g.* the descriptions of root-structure on pp. 35 *et seq.* In fact, all through the treatment of the physiological is much more satisfactory than that of the anatomical portions. Some of the illustrations, too, leave much to be desired; indeed, in a few cases the figures are badly drawn and inaccurate. Perhaps the worst are Figs. 20, 22, and 30.

(3) Though not without blemishes, "Essentials of Botany" may be characterised as an excellent elementary text-book. It is brightly written, and combines in an attractive manner information with directions for laboratory work. The reading of the book is obviously intended to be accompanied by actual examination of specimens, and throughout the work questions are constantly suggested which the student is left to answer for himself by direct observation. The illustrations are, for the most part, thoroughly good, though in a few cases they are not above criticism. For instance, in Fig. 20 centrosomes are figured (though not named) in a cell from one of the higher plants. Again, the flowers of the willow (Fig. 100) would be improved by the addition of the characteristic nectary.

As many of the plants selected are North American species, the book is naturally more suitable for use in American than in English schools. It may, however, be heartily recommended for use also on this side of the Atlantic, though it is to be regretted that the author did not supplement the use of American plant names by the addition of the Latin names as footnotes. This is only done in some cases (*e.g.* p. 183, &c.).

We thoroughly endorse Dr. Bergen's opinion that ecology (except in the most elementary form), and also the detailed discussion of evolution, are better omitted from the average school curriculum.

OUR BOOK SHELF.

Geology in the Field. The Jubilee Volume of the Geologists' Association (1858–1908). Edited by H. W. Monckton and R. S. Herries. Part i. Pp. iv+209. (London: Edward Stanford, 1909.) Price 5*s.* net.

IN commemoration of their jubilee, which took place on December 17, 1908, the council of the Geologists' Association decided to bring out a volume dealing with the geology of those parts of England and Wales which have been visited by the Association during the course of its excursions. The volume, which promises to attain a much larger size than was expected, is to be issued in four parts, the first of which is now before us. It is a well-printed work of 209 pages, with four plates and thirty-four text-illustrations; and

it deals with the district north of the Thames from Oxfordshire to Bedfordshire and the eastern counties. It comprises seven articles, with the following titles: (1) Middlesex and Hertfordshire, by Mr. J. Hopkinson; (2) Essex, by Mr. T. V. Holmes; (3) The Pliocene Deposits of the Eastern Counties, by Mr. F. W. Harmer; (4) The Pleistocene Period in the Eastern Counties, by Mr. Harmer; (5) Cambridgeshire, Bedfordshire, and West Norfolk, by Mr. R. H. Rastall; (6) Buckinghamshire, by Dr. A. Morley Davies; and (7) The Oxford and Banbury District, by Mr. J. A. Douglas.

In the articles relating to the several counties we have admirable summaries of what is known of the local geology, with discussions on some controverted questions, and a good deal of new and original matter, special attention being given in most cases to the localities visited during excursions of the association. Accounts brought up to date are given of the classic sections, such as those near Watford and Bushey, at Ilford, Upminster, and Grays, at Shotover Hill, Aylesbury, and Upware. The Palæolithic gravels of Rickmansworth, and the derived sarsen stones lately found there, are illustrated in photographic plates; the Hertfordshire Bourne and the Colne swallow-holes near South Mimms; the Dene-holes of Essex; the physiography of the Cambridge area; the relations of the Jurassic and Cretaceous formations, and of the Shotover Sands and Lower Greensand, are among the many topics discussed, apart from the more particular descriptions of the strata and their fossils. The vagaries of modern palæontological nomenclature are noticeable in different articles, as in the case of *Ammonites varians* (p. 4) and *Schloenbachia varians* (p. 168), to say nothing of some other names, the changes in which form the most serious stumbling-block to the student.

The subject of glaciation is dealt with in several of the articles, and more fully in that by Mr. Harmer on the East Anglian Boulder-clays. His essay, illustrated by two maps showing the distribution of the Drifts and the direction of movement of the ice-sheets, is in itself an important contribution to the advancement of science.

The work will thus be of great practical value to the field-student, and it must be consulted by everyone interested in the progress of geology in this country. At the same time, for historical purposes, the original records of excursions published in the Proceedings of the association must not be neglected.

Who's Who, 1910. Pp. xxiv+2162. (London: A. and C. Black.) Price 10*s.* net.

Who's Who Year Book for 1910. Pp. vii+162. (London: A. and C. Black.) Price 1*s.* net.

The Writers' and Artists' Year Book, 1910. Pp. viii+127. (London: A. and C. Black.) Price 1*s.* net.

The Englishwoman's Year Book and Directory, 1910. Edited by G. E. Mitton. Pp. xxvi+382. (London: A. and C. Black.) Price 2*s.* 6*d.* net.

Hazell's Annual for 1910. Edited by Hammond Hall. Pp. lxiii+608. (London: Hazell, Watson and Viney, Ltd.) Price 3*s.* 6*d.* net.

IT would be difficult to select for the busy man a more useful set of works of reference than the new issues of the five annual publications under notice. Each one of them is so well known that it is sufficient in every case to say that, not only has there been no diminution of accuracy and interest, but the various editors have all succeeded in adding to the completeness of the books entrusted to their care.

The long obituary at the beginning of the book, and the addition of some fifty pages to "Who's Who." serve to indicate that there have been material changes made in the new issue. "Who's Who Year Book" continues to be an indispensable supplement to the larger work, to which, indeed, it is a really useful key.

Writers, artists, and photographers will find in the third periodical information which it is difficult to obtain elsewhere.

The volume specially intended for women has been revised very thoroughly. Full information is provided concerning the part now taken by women in professional and other work, and the book may be recommended especially to schoolmistresses and parents desirous of finding suitable avocations for girls leaving secondary and other schools.

Among the new features of "Hazell's Annual" may be mentioned the introduction of signed articles. For example, Sir Oliver Lodge, F.R.S., contributes an article on the new physics, Sir Hiram Maxim writes on the evolution of the flying machine, and Mr. C. C. Turner on aërial navigation in 1909.

The New Physics: Sound. By Joseph Battell. Pp. xvi+274+xlvii. (Middlebury, Vt., U.S.A.: The American Publishing Co.; London: A. F. Bird, 1909.) Price 6*s.* 6*d.* net.

VERY few pages of this new treatment of physics need be read before we reach the conclusion that "the old is better." Mr. Battell's object in writing this book is to give "a condensed but complete exposure of the errors in the present theory of sound." He has been "for years opposed to all undulatory theories, as at variance with the fundamental principles of creation, and otherwise not only entirely, but very foolishly, erroneous," and while anxious to give every credit to such men as Koenig and Helmholtz, he comes to the rescue of truth with a book to prove that "sound, like light and odour, is composed of infinitesimal particles of matter." It is really extraordinary how such an effort as this can secure a publisher. No matter where a reader begins, whether at the beginning, the middle, or the end, the result is the same; it is impossible to interpret the author's meaning. Here and there, it is true, there are a few intelligible sentences, but in the main they are obscure and apparently unconnected with what precedes and follows. As an example of this we may quote the following, and leave it to the reader to gather what information he can.

"That light is made by bodies made to make it, as the sun or a lamp; or odour by things made to make it, as a sweet pea or water lily,—that is, by things having light-making or odour-making machinery, and that they can make no other light or odours than those they were made to make, or have the machinery to make,—is no more true, than that nothing can make Sound unless made to make it, or any sound except what it was made to make, and that means any unless it has the machinery to make it."

The author is, without doubt, ingenious in his way of making his particles submit to his theory. Perhaps this results from his acquaintance with horse-rearing. (It should be mentioned that among Mr. Battell's other publications are several volumes of the "American Stallion Register.") For instance, in order to account for the fact that sound is not propagated in a vacuum—at first sight a difficult thing to do on a corpuscular theory—the author naïvely suggests that the reason is the same as that which makes birds unable to fly without air.

Those who have read Mr. Battell's previous scientific work, "Ellen, or Whisperings of an Old Pine," will find this volume equally amusing, and from that point of view the book is, perhaps, worth its price; but those buying it in the expectation of a reasoned text-book for the study of physics will be disappointed.